

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date: DRAFT

Region: Washington Regional Office
County: Craven
NC Facility ID: 2500019
Inspector's Name: Robert Bright
Date of Last Inspection: 02/25/2016
Compliance Code: B / Violation - emissions

<p align="center">Facility Data</p> <p>Applicant (Facility's Name): Marine Corps Air Station - Cherry Point</p> <p>Facility Address: Marine Corps Air Station - Cherry Point Highway 70 and Highway 101 Cherry Point, NC 28533</p> <p>SIC: 9711 / National Security NAICS: 92811 / National Security</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>			<p align="center">Permit Applicability (this application only)</p> <p>SIP: N/A NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: N/A NC Toxics: N/A 112(r): N/A Other: N/A</p>																																																				
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I. Introduction and Purpose of Application

- A. Marine Corps Air Station (MCAS) - Cherry Point is home to both the headquarters of the 2nd Marine Aircraft Wing and Marine Transport Squadron 1. The facility is a major source of both criteria pollutants and hazardous air pollutants (HAP). The current air permit 04069T36 covers sources including boilers, generators, paint booths, washing and cleaning operations, and remediation systems.
- B. This permit action is the 2nd step of a two-step process allowed under 15A NCAC 02Q .0501(c)(2). As required by the rule, a complete application was received within 12-months of commencing operation for the new sources. No other changes have taken place since the first application was submitted. The review for the first application is attached to this document. The draft permit will go to public notice and EPA for review.

II. Changes to Existing Permit

The following table provides a summary of changes made with this revision (04069T37, 2500019.16B).

Page No.	Section	Description of Change
Cover letter	N/A	Amended application type; permit revision numbers, and dates.
1	Permit cover page	Amended permit revision numbers and all dates.
N/A	All, Header	Updated permit revision number.
12	Footnote to table	Removed footnote pertaining to significant modification under 15A NCAC 02Q .0501(c)(2).
36	2.1 T.	Removed reference to 15A NCAC 02Q .0504 from table.
46	2.1 T.5.	Removed condition pertaining to 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit for new emergency generators (ID Nos. CP-159-GEN and CP-4958-GEN).
46	2.1 U.	Removed reference to 15A NCAC 02Q .0504 from table.
54	2.1 U.5.	Removed condition pertaining to 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit for new fire pumps (ID Nos. CP-LS125-ICE, CP-3143-ICE, and CP-487-ICE).

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: July 26, 2016

Region: Washington Regional Office
County: Craven
NC Facility ID: 2500019
Inspector's Name: Robert Bright
Date of Last Inspection: 02/25/2016
Compliance Code: B / Violation - emissions

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I. Introduction and Purpose of Application

- A. Marine Corps Air Station (MCAS) - Cherry Point is home to both the headquarters of the 2nd Marine Aircraft Wing and Marine Transport Squadron 1. The facility is a major source of both criteria pollutants and hazardous air pollutants (HAP). The current air permit 04069T35 covers sources including boilers, generators, paint booths, washing and cleaning operations, and remediation systems.
- B. MCAS – Cherry Point is requesting that the current permit be modified as follows:
1. Add three (3) new diesel-fired fire pump engines (ID Nos. CP-LS125-ICE, CP-3143-ICE, and CP-487-ICE),
 2. Add two (2) new and one existing diesel-fired emergency generators (ID Nos. CP-159-GEN, CP-4958-GEN, and CP-4280-GEN),
 3. Move fifty-five (55) existing hot water heaters to the insignificant activity list under source (ID No. ICP-BOIL) as they are categorically exempt from MACT DDDDD and qualify as insignificant activities under 15A NCAC 02Q .0503(8).
 4. Replace current spray booth (ID No. CD-4075-PBTH),
 5. Remove twelve (12) small boilers, five (5) emergency generators, and eight (8) insignificant parts washers identified as follows:

ID No.	Description
3rdLAAM1	No. 2 fuel oil-fired boiler
3rdLAAM2	No. 2 fuel oil-fired boiler
3rdLAAM3	No. 2 fuel oil-fired boiler
3rdLAAM4	No. 2 fuel oil-fired boiler
3rdLAAM5	No. 2 fuel oil-fired boiler
AWTU2	No. 2 fuel oil-fired boiler
ACROSS RUNWAY	No. 2 fuel oil-fired boiler
AIROPSFAC	No. 2 fuel oil-fired boiler
SEWAGE PLANT1	No. 2 fuel oil-fired boiler
SEWAGE PLANT2	No. 2 fuel oil-fired boiler
SEWAGE PLANT3	No. 2 fuel oil-fired boiler
NSTRBLDG	LPG-fired boiler
CP-1402-GEN	Diesel-fired emergency generator
CP-2000-GEN	Diesel-fired emergency generator
CP-3886-GEN	Diesel-fired emergency generator
CP-4376-GEN	Diesel-fired emergency generator
CP-4428-GEN	Diesel-fired emergency generator
ICP-3909-PCLN-3	Parts cleaner
ICP-3909-PCLN-4	Parts cleaner
ICP-3909-PCLN-7	Parts cleaner
ICP-3909-PCLN-8	Parts cleaner
ICP-3909-PCLN-9	Parts cleaner
ICP-4067-PCLN-1	Parts cleaner
ICP-4067-PCLN-2	Parts cleaner
ICP-4526-PCLN	Parts cleaner

6. Various administrative changes.

- C. Because this modification does involve a significant change in existing monitoring and recordkeeping requirements it is classified as a significant modification under 15A NCAC 02Q .0516. The applicant has requested that the application be processed using the two-step procedures provided in 15A NCAC 02Q .0501(c)(2).

II. Changes to Existing Permit

The following table provides a summary of changes made with this revision.

Page No.	Section	Description of Change
Cover letter	N/A	Amended application type; permit revision numbers, and dates.
Attachment	Insignificant Activities	Moved fifty-five (55) No. 2 fuel oil and LPG-fired 'hot water heaters' to insignificant activity list under source (ID No. ICP-BOIL) as they are categorically exempt from 40 CFR 63 DDDDD and emissions are below significance levels listed in 15A NCAC 02Q .0503(8). Updated numerous ID Nos. associated with equipment relocations as described in the application, Table 3-1.
1	Permit cover page	Amended permit revision numbers and all dates.
N/A	All, Header	Updated permit revision number.
3	Table of Emission Sources	Moved fifty-five (55) No. 2 fuel oil and LPG-fired 'hot water heaters' to insignificant activity list under source (ID No. ICP-BOIL) as they are categorically exempt from 40 CFR 63 DDDDD and emissions are below significance levels listed in 15A NCAC 02Q .0503(8). For (ID No. CP-CVOT-GEN), changed status from emergency to non-emergency. For (ID No. CP-3522-GEN), changed description from 30kW/40kW to less than 500 hp. For (ID No. 4817-GEN), changed ID No. to CP-287-GEN.
12	Footnote to table	Included footnote pertaining to significant modification under 15A NCAC 02Q .0501(c)(2).
20	2.1 D.	Moved fifty-five (55) No. 2 fuel oil and LPG-fired 'hot water heaters' to insignificant activity list under source (ID No. ICP-BOIL) as they are categorically exempt from 40 CFR 63 DDDDD and emissions are below significance levels listed in 15A NCAC 02Q .0503(8).
25	2.1 K.	Updated section header to "Three dry filter-type paint spray booths (ID Nos. CP-1010-PBTH, CP-4007-PBTH, and CP-4075-PBTH)."
34	2.1 T.	Included two (2) new (ID Nos. CP-159-GEN, CP-4958-GEN) and one existing (ID No. CP-4280-GEN) emergency generators. Removed regulation references for area sources: 40 CFR 63.6603(a).
43	2.1 T.4. f.	Updated reference to 40 CFR 63 Table 2c.
46	2.1 T.5.	Included condition pertaining to 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit for new emergency generators (ID Nos. CP-159-GEN and CP-4958-GEN).
46	2.1 U.	Included three (3) new diesel-fired fire pumps (ID Nos. CP-LS125-ICE, CP-3143-ICE, and CP-487-ICE).
54	2.1 U.5.	Included condition pertaining to 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit for new fire pumps (ID Nos. CP-LS125-ICE, CP-3143-ICE, and CP-487-ICE).

Page No.	Section	Description of Change
74	2.2 L.	Moved fifty-five (55) No. 2 fuel oil and LPG-fired 'hot water heaters' to insignificant activity list under source (ID No. ICP-BOIL) as they are categorically exempt from 40 CFR 63 DDDDD and emissions are below significance levels listed in 15A NCAC 02Q .0503(8). Added compliance transition date from 112(j) Case by Case MACT to NESHAP MACT (23 May 2019).
67	2.2 I.	Removed facility-wide arsenic limit under 15A NCAC 02D .1100.
77	3 - General Conditions	Included General Conditions from most recent shell version (v4).

III. Statement of Compliance

The facility was most recently inspected on February 25, 2016 by Mr. Robert Bright of the Washington Regional Office (WARO). According to the inspection report, the facility appeared to operate in compliance with all applicable regulations and permit conditions at the time of inspection.

Compliance History (5-year)

On August 18, 2014, a Notice of Deficiency was issued for late semi-annual reports.

On June 29, 2015, a Notice of Violation/Notice of Recommended Enforcement was issued for exceeding the Hg emissions limit for Boiler 1. MCAS argued that the short duration of time between the cold startup of the boiler and test being conducted was the reason for the exceedance. MCAS was assessed \$4,633 via DAQ Case Number 2015-024 on August 18, 2015. MCAS was requested remission, which was upheld by the Environmental Management Commission.

IV. Regulatory Review – Specific Emission Source Limitations

- A. Existing Specific Emission Source Limitations are not affected by this modification. The proposed new generators will be subject to the requirements of 15A NCAC 02D .0516, and .0521. However, because the sources only fire distillate fuel oil, no monitoring, recordkeeping, or reporting is required to demonstrate compliance with the applicable regulations.
- B. 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes” – This regulation establishes an allowable emission rate for particulate matter from any stack, vent, or outlet resulting from any industrial process for which no other emission control standards are applicable. The regulation applies to Total Suspended Particulate (TSP) or PM less than 100 micrometers (µm). The allowable emission rate is calculated using the following equations:

$$\begin{aligned}
 E &= 4.10 \times P^{0.67} && \text{for } P < 30 \text{ tph} \\
 E &= 55 \times P^{0.11} - 40 && \text{for } P \geq 30 \text{ tph}
 \end{aligned}$$

where, E = allowable emission rate (lb/hr)
P = process weight rate (tph)

The replacement paint spray booth (ID No. CP-4075-PBTH) is subject to this regulation. The spray booth will be controlled with fabric filters. Inspection and maintenance, as recommended by the manufacturer, is required for the control equipment. Standard monitoring and recordkeeping requirements are included in the revised permit.

- C. 15A NCAC 02D .0516 “Sulfur Dioxide Emissions from Combustion Sources” - Emission of sulfur dioxide from any source of combustion that is discharged from any vent, stack, or chimney shall not exceed 2.3

pounds of sulfur dioxide per million BTU input. No. 2 fuel oil combustion in these sources will not cause the limit to be exceeded. Therefore, compliance is demonstrated.

- D. 15A NCAC 02D .0521 “Control of Visible Emissions” - For sources manufactured after July 1, 1971, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period. However, except for sources required to comply with Paragraph (g) of this Rule, six-minute averaging periods may exceed 20 percent opacity if:
- (1) No six-minute period exceeds 87 percent opacity;
 - (2) No more than one six-minute period exceeds 20 percent opacity in any hour; and
 - (3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.
- Compliance with this rule is expected.

V. Regulatory Review – Multiple Emission Source Limitations

- A. 15A NCAC 02D .0530 “Prevention of Significant Deterioration” – MCAS – Cherry Point is a major PSD source with the potential to emit criteria pollutants greater than 250 tons per year.

As explained in the application, separate funding codes, in relation to federally-funded projects allow for disaggregation of emissions for PSD purposes. For simplification of this application, the emissions associated with this project have been summed.

According to the application, emissions were calculated using AP-42 emission factors and 500 hours per year for external combustion sources and maximum product usage for the paint spray booth. Calculations are included in Appendix B of the application. For the paint spray booth, emissions calculations were performed using the maximum actual emissions from the previous five years.

Example calculations using AP-42 factor:

The increases in emissions resulting from the change of CP-CVOT-GEN from an emergency engine operating at a maximum of 500 hours per year.

Data: AP-42 factor = 2.4E-02 lbs NO_x/hp-hr
 Engine size = 13 hp
 Increase in hours of operation = 8,260 hrs

$$\frac{2.4E - 02 \text{ lbs NO}_x}{\text{hp} - \text{hr}} \times \frac{13 \text{ hp}}{\text{engine}} \times \frac{8260 \text{ hrs}}{\text{year}} \times \frac{1 \text{ ton NO}_x}{2000 \text{ lbs NO}_x} = \frac{1.23 \text{ tons NO}_x}{\text{year}}$$

The increase in emissions from the addition of the new emergency engine greater than 600 hp (CP-159-GEN, 755 hp) at 500 hours per year maximum operation:

$$\frac{2.4E - 02 \text{ lbs NO}_x}{\text{hp} - \text{hr}} \times \frac{755 \text{ hp}}{\text{engine}} \times \frac{500 \text{ hrs}}{\text{year}} \times \frac{1 \text{ ton NO}_x}{2000 \text{ lbs NO}_x} = \frac{4.53 \text{ tons NO}_x}{\text{year}}$$

The increase in emissions from the addition of the new emergency engines equal to or smaller than 600 hp at 500 hours per year maximum operation.

Data: AP-42 factor = 2.4E-02 lbs NO_x/hp-hr
 Engine sizes = 1,016 hp total for (CP-LS125-ICE, CP3143-ICE, CP-487-ICE, CP-4280-GEN, CP-4958-GEN) [75 hp + 75 hp + 74 hp + 402 hp + 389 hp = 1,016 hp]

$$\frac{3.10E - 02 \text{ lbs NO}_x}{\text{hp} - \text{hr}} \times \frac{1,016 \text{ hp}}{\text{engine}} \times \frac{500 \text{ hrs}}{\text{year}} \times \frac{1 \text{ ton NO}_x}{2000 \text{ lbs NO}_x} = \frac{7.87 \text{ tons NO}_x}{\text{year}}$$

The other criteria pollutants were calculated in a similar fashion using AP-42 factors. These values have been summarized in the table below.

Pollutant	AP-42 Emission Factor	Total Emissions Increase (tons per year)
CO	5.5E-03 lbs/hp-hr	4.30
NOx	2.40E-02 lbs/hp-hr (large) 3.10E-02 lbs/hp-hr (small)	13.63
PM	4.88E-04 lbs/hp-hr	2.22
PM-10	4.01E-04 lbs/hp-hr	2.21
PM-2.5	3.88E-04 lbs/hp-hr	2.20
SO2	1.21E-05 lbs/hp-hr (large) 2.05E-03 lbs/hr-hr (small)	0.63
VOC	N/A	1.79

Because the summation of each of the proposed projects is less than the PSD significant emission rates, no single project exceeds a PSD threshold. Therefore, PSD review is not triggered for this application.

The PSD minor source baseline dates for PM10, SO₂ and NOx have been triggered in Craven County. For PSD increment tracking purposes, PM10 emissions from this modification are increased by 0.50 pounds per hour, sulfur dioxide emissions are decreased by 4.13 pounds per hour, and nitrogen dioxide emissions are increased by 2.41 pounds per hour.

- B. 15A NCAC 02D .0524 “New Source Performance Standards – Subpart IIII” – The diesel-fired generators and fire pumps at MCAS – Cherry Point are subject to this rule. The application identifies two (2) new and one existing emergency generators (ID Nos. CP-159-GEN, CP-4958-GEN, and CP-4280-GEN) that are subject to the same requirements listed in existing condition 2.1 T.3. The application also identifies three (3) new fire pumps (ID Nos. CP-LS125-ICE, CP-3143-ICE, and CP-487-ICE) that are subject to the same requirements listed in existing condition 2.1 U.3. According to the application, the facility will purchase engines certified to meet the emission limits in §60.4202. Compliance is expected.
- C. 15A NCAC 02D .1111 “Maximum Achievable Control Technology – Subpart DDDDD and 112(j)” – MCAS – Cherry Point currently has boiler MACT requirements for new sources based on the March 2011 rule. These requirements include initial notifications, work practice standards, and compliance reporting. Sources meeting the definition of “hot water heater” under the Boiler MACT are exempt from regulation per 40 CFR 63.7491(d). Section 2.2 L. of the current permit includes hot water heaters under requirements for the Case-by-Case MACT. The DAQ has specified that hot water heaters, as defined in Section 16 of the NC DAQ Part 2 Application Guidance, are not affected sources under the Case-by-Case MACT. Potential emissions from the sources are less than 5 tons per year. Therefore, the sources are removed from Section 2.2 L and Section 2.1 D. and placed on the insignificant activity list under ID No. CP-BOIL. The sources removed are all less than 120 gallons capacity each with the following ID Nos.:
- 27HEADQTRS, BEQ1 through BEQ18, BOQ-4A and 4B, BOWLINGCENTER, CHILDCARE, CHILLEVEL1, 2, and 3, COMMUNICATIONS, CP-4845-BOIL, CP-1010-BOIL, CP-89901-DEHUM, CP-89902-DEHUM, DDSTACT, ENG/MAINT1 and 2, FIRE/CRASH, FIRESTAT#2, FLIGHTSIMULATOR, MACS6, 6A, and 6B, MAG32, MAINTFAC1 and 2, MAINTSHOP, MOTOR”T”, OPS BLDG, ORDNANCE, REFUEL MAINT, STATIONGYM, TRAINERFAC, VMA231, VMAT202, WAREHOUSE1, 2, and 3.
- D. 15A NCAC 02D .1111 “Maximum Achievable Control Technology – Subpart ZZZZ” – All stationary internal combustion engines at MCAS – Cherry Point are subject to the RICE MACT. The application identifies three (3) diesel-fired emergency generators and 3 diesel-fired fire pumps that will be subject to existing requirements found in conditions 2.1 T.4. and 2.1 U.4.

- E. 15A NCAC 02D .1100 “Control of Toxic Air Pollutants” – MCAS – Cherry Point was required to submit a state-only toxics demonstration no later than January 13, 2012. The demonstration was required to include all permitted sources up through revision T34 with units operating at potential-to-emit rates. The results demonstrated that the modeled emission rates were in compliance with acceptable ambient levels (AAL) listed in 15A NCAC 02D .1104. No operating limitations were necessary to comply with the AAL.

Since the 2012 submittal, the Exemptions under 15A NCAC 02Q .0702 were amended to include a categorical exemption for sources subject to a MACT standard. All sources in this application are subject to a MACT standard and thus meet the exemption. Addition of the diesel-fired emergency generators and fire pumps does not pose an unacceptable health risk.

MCAS – Cherry Point requests that the existing facility-wide limit for arsenic in Section 2.2 I. be removed. According to the application, the greatest contributors to arsenic emissions are the boilers and jet engine testing. The boilers are exempt as Case-by-case MACT sources under 02Q .0702(a)(27). For jet engine testing, newer emission factors from Air Emissions Guide for Air Force Stationary Sources by the Air Force Civil Engineering Center in October 2014 have removed arsenic as a contributor. The latest jet fuel analysis for Cherry Point resulted in arsenic to be below the non-detect limit. Therefore, jet engine testing has been removed as a contributor to facility-wide arsenic emissions. Updated calculations for affected sources under 15A NCAC 02Q .0700 show that facility-wide arsenic emissions are 4.17E-02 lb/yr. The toxic permit emission rate (TPER) is 5.30E-02 lb/yr. Therefore, the existing arsenic limit is removed.

The North Carolina Division of Air Quality (DAQ) air toxics program is a "risk-based" regulatory program designed to protect the public health by limiting the emissions of toxic air pollutants from man-made sources. Facilities are not required to perform dispersion modeling until emission levels have exceeded their respective TPER level for a specific pollutant. Because the facility-wide arsenic emissions are currently below the TPER for arsenic, the emissions from this facility would not require modeling. Therefore, the DAQ does not believe that the arsenic emissions would present an unacceptable public health risk.

- F. 15A NCAC 02D .0614 “Compliance Assurance Monitoring” - The CAM rule applies to pollutant specific emission units at Title V facilities that are pre-control major sources and use a control device to comply with an emission limit. The CAM rule does not apply to units that are identified in this application. Therefore, CAM does not apply.

VI. Other Regulatory Considerations

- An application fee of \$922.00 is required and was received by DAQ along with the application package.
- The appropriate number of application copies was received by DAQ on April 20, 2016.
- A Professional Engineer’s Seal is not required for this application.
- MCAS – Cherry Point is located on Federal property and is therefore not subject to local zoning regulations. All of the proposed modifications have been approved by the installation planning and development authority and are in accordance with the Post master plan.
- Public notice is not required for this 1st step of a 2 step process allowed under 15A NCAC 02Q .0501(c)(2).
- IBEAM Title V Equipment Editor (TVEE) update was verified on July 21, 2016.
- According to the application, the facility has submitted a risk management plan (RMP) to EPA pursuant to 40 CFR Part 68.10.
- The application was signed by Mr. George Radford, Environmental Affairs Officer by direction of the Commanding Officer, on April 13, 2016.

VIII. Recommendations

This permit application has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is expected to achieve compliance as specified in the permit with all applicable requirements. A draft was provided to the applicant and WARO on July 11, 2016. The applicant responded with minor administrative changes. WARO responded with no comments. DAQ recommends issuance of the permit revision.